
IN THE CLAIMS

Please Cancel all Original Claims and enter and Allow the following New Claims 47 - 76.

47. (new): A system for monitoring change in:

the ratio of and/or
the phase between orthogonal components in;

a polarized beam of electromagnetic radiation which is caused by interaction with a material system;

said system comprising input and output lenses which are each of multiple element construction, wherein, for each of said input and output lenses at least two elements thereof are made from different materials, such that in use the focal length for each wavelength in a range of wavelengths is within an acceptable range of focal lengths, wherein said input and output lenses are characterized by a selection from the group consisting of:

both demonstrate birefringence; and
one thereof demonstrates birefringence and the other not.

48. (new): A system as in Claim 47, wherein said input and output lenses each comprises two sequentially oriented elements, one of said two sequentially oriented elements being of a shape and orientation which individually diverges a beam of electromagnetic radiation caused to pass therethrough, and the other being of a shape and orientation which individually

converges a beam of electromagnetic radiation caused to pass therethrough, wherein said convergence effect is greater than said divergence effect; there being a region between said at least two elements such that, in use, a beam of electromagnetic radiation sequentially passes through one of said at least two elements, then said region therebetween, and then the other of said at least two elements before emerging as an effectively converged, focused, beam of electromagnetic radiation.

49. (new): A system as in Claim 47, wherein at least one of said input and output lens system comprises:

a sequential combination of a bi-convex element and a bi-concave element.

50. (new): A system as in Claim 47, wherein at least one of said input and output lens system comprises:

a sequential combination of a bi-concave element and a bi-convex element.

51. (new): A system as in Claim 47, wherein at least one of said input and output lens system comprises:

a sequential combination of a bi-convex element and a plano-concave element with said concave side of said plano-concave element adjacent to said bi-convex element.

52. (new): A system as in Claim 47, wherein at least one of said input and output lens system comprises:

a sequential combination of a bi-convex element and a plano-concave element with said essentially flat side of

said plano-concave element being adjacent to said bi-convex element;

53. (new): A system as in Claim 47, wherein at least one of said input and output lens system comprises:

a sequential combination of a plano-concave element and a bi-convex element with said essentially flat side of said plano-concave element adjacent to said bi-concave element;

54. (new): A system as in Claim 47, wherein at least one of said input and output lens system comprises:

a sequential combination of a plano-concave element and bi-convex element with said concave side of said plano-concave element adjacent to said bi-convex element.

55. (new): A system as in Claim 47, wherein at least one of said input and output lens system comprises:

a sequential combination of a plano-convex element and a bi-concave element with said essentially flat side of said plano-convex element adjacent to said bi-concave element.

56. (new): A system as in Claim 47, wherein at least one of said input and output lens system comprises:

a sequential combination of a bi-concave element with a plano-convex element with said convex side of said plano-convex element adjacent to said bi-concave element.

57. (new): A system as in Claim 47, wherein at least one of said input and output lens system comprises:

a sequential combination of a plano-concave element and a plano-convex element with the essentially flat side of said plano-concave element being adjacent to the convex side of the plano-convex element.

58. (new): A system as in Claim 47, wherein at least one of said input and output lens system comprises:

a sequential combination of a plano-concve element and a plano-convex element with the essentially flat side of said planoconcave element being adjacent tot he convex side of said plano-convex element.

59. (new): A system as in Claim 47, wherein at least one of said input and output lens system comprises:

a sequential combination of a plano-convex element and a plano-concave element with the essentially flat side of said plano-covex element and the essentially flat side of said plano-concave element being adjacent to one another;

60. (new): A system as in Claim 47, wherein at least one of said input and output lens system comprises:

a sequential combination of a plano-concave element and a plano-convex element with the concave side of said plano-concave element being adjacent to the convex side of the plano-convex element.

61. (new): A system as in Claim 47, wherein at least one of

said input and output lens system comprises:

a sequential combination of a plano-convex element and a bi-concave element with said convex side of said plano-convex element adjacent to said bi-concave element.

62. (new): A system as in Claim 47, wherein at least one of said input and output lens system comprises:

a sequential combination of a bi-concave element and a plano-convex element with said essentially flat side of said plano-convex element adjacent to said bi-concave element.

63. (new): A system as in Claim 47, wherein at least one of said input and output lens system comprises:

a sequential combination of a plano-convex element and a plano-concave element with said convex side of said plano-convex element adjacent to the concave side of the plano-concave element.

64. (new): A system as in Claim 47, wherein at least one of said input and output lens system comprises:

a sequential combination of a plano-concave element and a plano-convex element with said essentially flat side of said plano-convex element being adjacent to the essentially flat side of the plano-concave element.

65. (new): A system as in Claim 47, wherein at least one of said input and output lens system comprises:

a s quential combination of a plano-convex element and a plano-concave element with said convex side of said plano-convex element being adjacent to the essentially flat side of the plano-concave element.

66. (new): A system as in Claim 47, wherein at least one of said input and output lens system comprises:

a sequential combination of a plano-concave element with a plano-convex element with the essentially flat side of said plano-convex element being adjacent to the concave side of said plano-concave element.

67. (new): An system as in Claim 47, characterized by at least one condition selected from the group consisting of:

at least one of the input and output lenses comprises at least two sequentially oriented elements, and is characterized by being a selection from the group consisting of:

a sequential combination of a converging element and a diverging element;

a sequential combination of a diverging element and a converging element;

a sequential combination of a converging element, a diverging element, a converging element and a diverging element;

a sequential combination of a converging element, a diverging element, a diverging element and a converging element;

a sequential combination of a diverging element, a converging element, a diverging element and a converging element;

a sequential combination of a diverging element, a converging element, a converging element and a diverging element;

includes a miniscus lens; and

includes an aspherical lens.

68. (new): A system as in Claim 47, wherein at least one of said input and output lens system comprises two elements with a region therebetween, wherein said region between said at least two elements has the optical properties of a selection from the group consisting of:

a void region; and
a functional equivalent to a void region.

69. (new): A system as in Claim 47, wherein for each of the input and output lenses, each of said at least two elements thereof are made from different materials independently selected from the group consisting of:

CaF_2;
BaF_2;
LiF;
MgF_2; and
fused silica;

and wherein each of said at least two elements are individually selected to be made of different materials.

70. (currently amended): A system as in Claim 47 wherein at least one of the input and output lenses is characterized by at least one selection from the group consisting of:

a[[.]]_ the focal length is between forty and forty-one millimeters over a range of wavelengths of at least two-hundred to seven-hundred nanometers;

b[[.]]_ the focal length varies by less than five (5%) percent over a range of wavelengths of between two-hundred and five-hundred nanometers; and

c[[.]]_ the spot diameter at the focal length is less than seventy-five microns over a range of wavelengths of at least two-hundred to seven-hundred nanometers.

71. (new): A system as in Claim 47, wherein one of said input and output lenses comprises an element made of a selection from the group consisting of:

CaF_2; and
fused silica.

72. (new): A system as in Claim 47, in which at least one of said input and output lens is made of two elements, one of said elements being made of fused silica and the other of CaF_2.

73. (new): A system as in Claim 47, wherein the input and output lenses each comprise a converging element selected from the group consisting of:

a positive miniscus;
an asymetic convex;

and/or a diverging element selected from the group consisting of:

a negative miniscus;
an asymetric concave.

74. (currently amended): A system as in Claim 47 which is an ellipsometer or polarimeter system in which the input and output lenses are part of a system sequentially comprising:

a[[.]]) a source of a spectroscopic beam electromagnetic
radiation;
b[[.]]) a polarizer element;

in either order elements c[[.]] and d[[.]]:

c[[.]]) optionally a compensator element;

d[[.]]) said input lens;

e[[.]]) a material system;

in either order elements f[[.]] and g[[.]]:

f[[.]]) said output lens;

g[[.]]) optionally a compensator element;

h[[.]]) an analyzer element; and

i[[.]]_ a detector System.

75. (new): A system as in Claim 74 which further comprises beam directing means and/or windows located at least one selection from the group consisting of:

a) between said source of a spectroscopic beam electromagnetic radiation and said material system; and

b) between said material system and said detector system.

76. (new): A system for monitoring change in:

the intensity of; and/or
the ratio of and/or
the phase between orthogonal components in;

a beam of electromagnetic radiation which is caused by interaction with a material system;

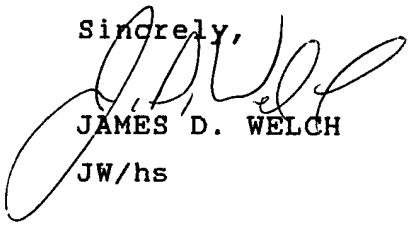
said system comprising input and output lenses which are each of multiple element construction, wherein, for each of said input and output lenses at least two elements thereof are made from different materials, such that in use the focal length for each wavelength in a range of wavelengths is within an acceptable range of focal lengths, wherein said input and output lenses are characterized by a selection from the group consisting of:

both demonstrate birefringence; and
one thereof demonstrates birefringence and the other not.

It is now believed that the Application is in order for

Allowance, and the Examiner is respectfully requested to Allow the Pending New Claims 47 - 76. Should problems remain please contact Attorney Welch. Applicant is receptive to suggestions of and Amendments by the Examiner.

Sincerely,



JAMES D. WELCH

JW/hs